

**PROGRAMME SPECIFICATION**

**Course record information**

Name and level of final award	<p><b>BSc (Honours) Data Science and Analytics</b>  <b>BSc (Honours) Data Science and Analytics with Industrial Experience</b></p> <p>The BSc (Honours) Data Science and Analytics is a BSc (Hons) degree that is Bologna FQ-EHEA first cycle degree or diploma compatible.</p>
Name and level of intermediate awards	<p>Diploma of Higher Education in Data Science and Analytics</p> <p>Diploma of Higher Education in Data Science and Analytics with Industrial Experience</p> <p>Certificate of Higher Education in Data Science and Analytics</p>
Awarding body/institution	University of Westminster
Teaching Institution	University of Westminster
Status of awarding body/institution	Recognised Body
Location of delivery	Central London
Language of delivery and assessment	English
Mode, length of study and normal starting month	<p>Full time, three years, September start OR</p> <p>Full time, four years with Industrial Experience, September start</p>
<a href="#">QAA subject benchmarking group(s)</a>	<ul style="list-style-type: none"> <li>• <a href="#">Computing</a></li> <li>• <a href="#">Mathematics, Statistics and Operational Research</a></li> </ul>
Professional statutory or regulatory body	<p>British Computer Society (BCS)</p> <p>Pending approval</p>
Date of course validation/review	2019
Date of programme specification approval	September 2019
Valid for cohorts	2020/2021
Course Leader	Dr Salma Chahed
UCAS code and URL	<a href="http://westminster.ac.uk/courses/undergraduate">westminster.ac.uk/courses/undergraduate</a>
Westminster course code	BSDAT01F
Westminster route code	

## Admissions requirements

There are standard minimum [entry requirements](#) for all undergraduate courses. Students are advised to check the standard requirements for the most up-to-date information.

For most courses a decision will be made on the basis of your application form alone. However, for some courses the selection process may include an interview to demonstrate your strengths in addition to any formal entry requirements.

More information can be found here: [westminster.ac.uk/courses/undergraduate/how-to-apply](http://westminster.ac.uk/courses/undergraduate/how-to-apply)

## Recognition of Prior Learning

Applicants with prior certificated or experiential learning at the same level of the qualification for which they wish to apply are advised to visit the following page for further information: [westminster.ac.uk/recognition-of-prior-certified-learning](http://westminster.ac.uk/recognition-of-prior-certified-learning).

## Aims of the course

The *BSc Data Science and Analytics* course has been designed to:

- Provide students with knowledge of the fundamental principles and technologies that underpin the disciplines of mathematics, statistics and computing with an emphasis on the skills and theories required in data science and analytics.
- Initiate students into the selection and application of cutting-edge mathematics, statistics and computer science techniques and tools to collect, store, prepare, analyse and visualise data.
- Comprehend and analyse organisations' operations and environment and related issues.
- Provide a motivating and inclusive environment with the opportunity to develop themselves intellectually and socially and to encourage students to develop as independent and self-critical problem solvers.
- Prepare students with professional attitudes with awareness of ethical, legal, and social issues, interpersonal and entrepreneurial skills required in industry.
- Prepare students for continued study at an advanced level in either formal postgraduate study or as continued professional development.

Overall this course aims to equip students with a combination of analytical, technical and presentation skills needed to convert data into valuable insights in an appropriate format to support decision making. These skills are much needed in a continuously changing global environment where huge and fast-growing amount of data are generated through the use of Social network and Internet of Things, processed and analysed through increasingly

sophisticated computer capabilities and algorithmic models, and stored using sophisticated technologies such as Cloud Computing. These skills are needed by both businesses and governments. Businesses have been collecting data on their customers, partners and the market in which they operate to support evidence-based decision making. Similarly governments rely on data to improve their policies and deliver better services.

### **What will you be expected to achieve?**

Learning outcomes are statements on what successful students have achieved as the result of learning. These are threshold statements of achievement the learning outcomes broadly fall into four categories:

- The overall **knowledge and understanding** you will gain from your course (KU).
- **Graduate attributes** are characteristics that you will have developed during the duration of your course (GA).
- **Professional and personal practice learning outcomes** are specific skills that you will be expected to have gained on successful completion of the course (PPP).
- **Key transferable skills** that you will be expected to have gained on successful completion of the course. (KTS)

**Level 4 course learning outcomes:** upon completion of level 4 you will be able to:

L4.1 Demonstrate knowledge of the underlying concepts and principles associated with mathematical and statistical modelling and programming (KU)

L4.2 Relate the understanding of basic algorithmic, statistical and mathematical techniques to the analysis of well-defined small scale problems and the design of their solutions. (KU)

L4.3 Demonstrate ability to prepare, analyse and visualise data using appropriate mathematical and statistical techniques and tools. (PPP)

L4.4 Describe, create and manipulate simple data collections to store organisational data and business rules, recognising limitations of their underlying representation. (PPP)

L4.5 Methodically capture user requirements and devise an appropriate basic information system specification that meets them. (KTS)

L4.6 Apply programming principles and constructs to implement solutions to small scale problems. (PPP)

L4.7 Show awareness of the ethical issues involved in data life cycle. (KTS)

L4.8 Communicate clearly and effectively using structured and coherent arguments, results of their work undertaken through a guided process of selection of sources, in written and/or oral form. (KTS)

L4.9 Work effectively as a team member to achieve objectives using appropriate resources and tools efficiently. (KTS)

**Level 5 course learning outcomes:** upon completion of level 5 you will be able to:

L5.1 Demonstrate knowledge and critical understanding of the principles and concepts of operations strategy and management in an organisational context. (KU)

L5.2 Comprehend organisational problems, abstract the essentials of problems and formulate them analytically and in symbolic form, so as to facilitate their analysis and solution, and grasp how analytical processes may be applied to them (KTS)

L5.3 Demonstrate knowledge of the main algorithmic and analytic methods, and ability to evaluate critically the appropriateness of different approaches to solving problems

L5.4 Demonstrate competency in applying algorithmic and analytical approaches to solve medium scale problems, and appraise the effect of assumptions on analytical modelling and output analysis. (PPP)

L5.5 Explore new or existing data to identify patterns and relationships through the application of appropriate algorithms and tools. (PPP)

L5.6 Use a range of established techniques to demonstrate how information is modelled, persistently stored, manipulated and retrieved, as data, to serve scalable solutions to medium-scale business problems. (KTS)

L5.7 Effectively communicate models and analysis with accuracy and clarity to support high quality decision making. (KTS)

L5.8 Critically evaluate professional, legal and/or ethical issues, and demonstrate professional responsibility in the development of quality data science solutions in a global context. (KTS)

**Level 6 course learning outcomes:** upon completion of level 6 you will be able to:

L6.1 Demonstrate a systematic understanding of a range of advanced modelling and visualisation methods and techniques, their conditions and limitations, and of the need to validate and revise models. (KU)

L6.2 Demonstrate critical understanding and assessment of models to analyse a problem, to frame appropriate questions to achieve a solution, to develop a comprehensive solution or to design a range of scenarios resulting from modifications to it. (KU)

L6.3 Transfer knowledge from one context to another, assess complex problems logically, approach them analytically leading to the formulation of solutions, and interpret related results in the original contexts of the problems (KTS)

L6.4 Appropriately analyse large scale data systems to discover trends and hidden relationships and inform / automate decision making. (PPP)

L6.5 Apply appropriate specialist software and/or programming as an aid to an analytical study for critically evaluating and/or visualising the outcomes to support conclusions and/or recommendations, or for acquiring any further information. (PPP)

L6.6 Be effective in professional and interpersonal communication of information, problems, models and solutions to both specialist and non-specialist audiences (KTS)

L6.7 Demonstrate complete handling of the full life-cycle of a data science and analytics project underpinned by an entrepreneurial approach and a focus on the needs of real clients and the wider society within a professional, legal and ethical framework. (KTS)

L6.8 Apply appropriate research methodologies in carrying out independent research in data science and analytics and produce a report demonstrating evidence of critical thinking. (KTS)

Course level learning outcomes and graduate attributes are mapped to the core modules in which they will be delivered under section “Employment and further study opportunities”.

## **The learning and the teaching of the course**

### **How will you learn?**

Your course is a collection of learning opportunities. Using these opportunities will help you mature in attitude and competence, preparing you for your future career and life in general. Learning in your course is a partnership: expert University staff will guide you through the necessary core knowledge of your subject and help you develop an understanding, while you, increasingly, take the leading role in pursuing the learning that meets your specific needs.

Your course is organised into a number of modules at each level. These are the building blocks of your course. Each module consists of a number of learning activities over a number of weeks designed to help you achieve the knowledge and skills related to a particular area within your subject.

The principal aim of your course is to equip you for professional life, or higher study, relevant to your current programme of study.

To prepare you for this, the learning in your course will not take place only in the class. Your learning will use four methods, each supporting the others:

- *Lectures* will give you access to expertise and present you with the knowledge you need in your subject.
- *Practical tutorial or laboratory sessions* will allow you to understand, apply and strengthen your skills under the guidance of a tutor.
- *Independent study time* will let you take more control of your own learning and give you the framework that will help you to keep on learning without supervision.
- *Personal development* will allow you to complement your knowledge with the specific specialised skills that meet your individual needs.

Whenever possible online resources will be provided through the university virtual learning environment to support you in your learning.

In your first year of study (Level 4) you will make the full transition into Higher Education. You will develop the key core skills for statistics, mathematics and programming. To help this transition your course has additional classes and support sessions at this level that you will need to fully engage with so you can prepare for the advanced study that follows.

Your second year of study (Level 5) will help you develop some autonomy. At this level you will develop detailed knowledge in analytics, data mining and machine learning, service operations management, and database systems. You will also be able to deal with more specialist areas such as object-oriented programming and project management methodologies by yourself and in teams, reflecting on your own strengths and identifying areas to specialise in. Real-life project briefs or case studies, normally provided by an organisation, will give you the opportunity to engage with employers and use your knowledge and skills to solve a real-life or a business-related problem. Following that level, you may choose to have a year in industry (a work placement year) to practice and enhance your learning from course by strengthening your understanding of industry needs through direct application of your evolving skills.

Your final year of study (Level 6) introduces advanced analytical techniques and cutting-edge solutions using relevant industry tools. You will have learned to work autonomously with your lecturers increasingly being there to support you and challenge your thinking. This is the level that completes your preparation for going into industry and further study, with an ability to handle the complexity of large-scale systems and environments and with full control of your further development needs.

### **How will you be assessed?**

As your learning continues it is important to stop every now and then and take stock of how much you learn so that you know where you are and how much more you still need to cover.

In your course, assessment and feedback are the key elements in measuring learning. Assessment in your course has two functions: **formative assessment** is assessment that lets you see where you are in your learning and what you have learned so far, while **summative assessment** measures how much you have learned in a way that contributes to your overall grades.

You will undertake a **wide variety of assessment tasks** as you progress through your degree course. Their nature will vary according to your level and the nature of the task. You will write *essays* and *research reports*, and learn to write in a style suitable to a piece of academic work, and to make proper use of references and bibliographies.

Other forms of assessment will include *practical exercises* ranging from small tasks that might be completed in a tutorial, to something more complex like designing and writing a larger computer program. For example, *part-written practical reports* and *Lab-controlled assessments* will be used to test your ability to analyse and interpret data, and/or build and reflect on real-world cases during computer lab sessions.

There will be some formal *examinations* (usually at the end of each term). Some of the work will be completed individually through *closed-book exams* or *in-class tests*, and sometimes you will work with other students as part of a team, emulating as close as possible the environment you will face in your later life in industry. *Group coursework* and *team projects*, which are essential for data science related careers, will help you to develop practical skills alongside the more specific skills that are being assessed. For example, you will be working as part of a team on a typical industry case study and will be assessed on your ability to appreciate the importance of business operations and their interaction. Each group member will be in charge of specific task(s), and all together will have to collaborate and exchange relevant information to satisfy the organisation objectives. Such a group work will be a simulation of a real life working environment with shared goals but individual accountability and codes of conduct.

Other methods of assessments used to evaluate various graduate skills may include *portfolios* where you will be designing and presenting an artefact such as infographics and dashboard. All assessments that contribute to your final grades will be assessed against set criteria, following rigorous quality mechanisms that ensure our academic judgement remains fair and consistent with the wider educational sector.

Typically, assessment tasks will become longer, and more self-managed, as you get into the second year and the final year of your course and they will have less detail in guidance and more room for you to innovate through your own decisions informed by your own research in your specialist areas. To support you through this transition, links to publicly accessible datasets such as UK Data archive and Kaggle Datasets, and free analytical tools such as R and Weka will be made available through the course's Blackboard site. These will be regularly updated and can be used by the students for personal development and/or their final year projects.

**Assessment is designed to be a learning experience in itself** and will help you make that transition from small practical exercises to more complex piece of work towards the substantial, year-long, project of your final year.

To help you see how different areas connect with each other you will have in some cases tasks that assess the outcomes from different modules in one complex piece of work. These are called **synoptic assessments**. Examples of synoptic assessment for your course include the *individual project* at Level 6 and a *hackathon* for Levels 5 and 6 students organised in collaboration with a different industry partner every year. These partners may be alumni and/or collaborators of the School of computer science and Engineering research groups.

Overall guidance through the personal tutoring system will help you continuously reflect on where you are of your learning so you can make informed decisions on the pace and focus of your own independent learning.

Throughout your learning you will get feedback. **Feedback** will help you reflect on what you have learned so you can identify the areas in which you are strong and the areas in which you need to learn more. Feedback will be given to you in response to assessment, in response to questions in lectures, seminars and tutorials, and in guidance you get during supervision. But feedback will also come from your interactions with other students and with industry. This is possible if you choose to undertake an industrial placement year and/or through participation in national and international competitions in the field of data science and analytics (e.g. Kaggle competitions, O.R. & Analytics Student Team Competition, Tableau's Student Viz.). To promote learning and encourage autonomy, students' achievements are celebrated. You are also invited to participate in Data Science and Analytics networking events, such as Data Science Festival, Analytics Network and meetup groups. All feedback will be useful to help you guide your learning so that you develop the rights skills faster.

## **Employment and further study opportunities**

The course offers a short-term work-based learning experience by providing you with an opportunity to work on a real-life problem which is normally set by an external organisation as a small-scale project.

This project forms a part of the assessment in a designated module called 5DATA002W Machine Learning and Data Mining. This module provides the structure for your learning and

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receiving support from the module team. You will work on the project on your own and/or as part of a small team within and outside the class. During this time, you may also get a chance to interact with the organisation that has set the project. The quality of the work that you produce for the project get assessed as part of the module's assessment.

This experience will allow you to put theory into practice by applying your knowledge and skills gained from various modules to address a real-life situation, usually within the context of a business-related problem. Furthermore, this experience will help you develop subject-specific technical skills as well as certain employability skills such as leadership, organisation and commercial awareness.

In addition, this course gives you with the opportunity to take a year in industry (work placement) after completing the second year of your study and gain work experience, increasing your chances of employability after graduation. You will be offered help and support to find and secure placement opportunities through various workshops and events organised by the Career Development Centre and the course team. Typically, you will be assigned into roles involving tasks related to data science and analytics.

As a graduate of University of Westminster, you shall be expected to demonstrate the following five Graduate Attributes:

- Critical and creative thinkers
- Literate and effective communicator
- Entrepreneurial
- Global in outlook and engaged in communities
- Social, ethically and environmentally aware

University of Westminster courses capitalise on the benefits that London as a global city and as a major creative, intellectual and technology hub has to offer for the learning environment and experience of our students.

The *BSc Data Science and Analytics* aims to create graduates who have a strong focus on solving real-world problems, have adaptability and maturity, and have a strong foundation of knowledge and the technical capability to be able to immediately contribute to their workplace environment. Graduates of the *BSc Data Science and Analytics* course will have been taught and have utilised industrial techniques and tools and will be versed in analytical and technical aspects of data processing, analysis and visualisation. Graduates shall be independent thinkers, prepared for lifelong learning and be able to analyse, critically reflect, and confidently and effectively communicate. They shall be able to meet the required professional and ethical standards expected in the workplace. Graduates shall also be capable of and prepared for broadening their knowledge by undertaking Masters level study on related subjects. We provide such opportunity to our graduates within the School of Computer Science and Engineering.

Attributes are developed throughout all levels of the course to help graduates compete effectively in a global changing environment. The table below maps the attributes to the core course modules for levels 4 to 6.



	<b>Graduate Attributes</b>	<b>Level 4 course LOs</b>	<b>Applied Mathematics</b>	<b>Statistical modelling and analysis</b>	<b>Database design and implementation</b>	<b>Requirements Modelling</b>	<b>Software development I</b>	<b>Software development II</b>
KU	Critical and creative thinkers	L4.1 Demonstrate knowledge of the underlying concepts and principles associated with mathematical and statistical modelling and programming	✓	✓				
		L4.2 Relate the understanding of basic algorithmic, statistical and mathematical techniques to the analysis of well-defined small scale problems and the design of their solutions.	✓	✓			✓	✓
PPP	Critical and creative thinkers	L4.3 Demonstrate ability to prepare, analyse and visualise data using appropriate mathematical and statistical techniques and tools.		✓				
		L4.4 Describe, create and manipulate simple data collections to store organisational data and business rules, recognising limitations of their underlying representation.			✓		✓	✓
		L4.6 Apply programming principles and constructs to implement solutions to small scale problems.					✓	✓
KTS	Entrepreneurial	L4.5 Methodically capture user requirements and devise an appropriate basic information system specification that meets them.				✓		
	Social, ethically and environmentally aware	L4.7 Show awareness of the ethical issues involved in data life cycle.		✓	✓			
	Literate and effective communicator	L4.8 Communicate clearly and effectively using structured and coherent arguments, results of their work undertaken through a guided process of selection of sources, in written and/or oral form.	✓	✓	✓	✓	✓	

Entrepreneurial and Global in outlook and engaged in communities	L4.9	Work effectively as a team member to achieve objectives using appropriate resources and tools efficiently.		✓	✓	✓		
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	Graduate Attributes	Level 5 course LOs	Service operations management	Database systems	Business analytics	Machine Learning and Data mining
KU	Entrepreneurial	L5.1 Demonstrate knowledge and critical understanding of the principles and concepts of operations strategy and management in an organisational context.	✓			
	Critical and creative thinkers	L5.3 Demonstrate knowledge of the main algorithmic and analytic methods, and ability to evaluate critically the appropriateness of different approaches to solving problems			✓	✓
PPP	Critical and creative thinkers	L5.4 Demonstrate competency in applying algorithmic and analytical approaches to solve medium scale problems, and appraise the effect of assumptions on analytical modelling and output analysis.	✓		✓	✓
		L5.5 Explore new or existing data to identify patterns and relationships through the application of appropriate algorithms and tools.			✓	✓
KTS	Entrepreneurial	L5.2 Comprehend organisational problems, abstract the essentials of problems and formulate them analytically and in symbolic form, so as to facilitate their analysis and solution, and grasp how analytical processes may be applied to them	✓		✓	
	Critical and creative thinkers	L5.6 Use a range of established techniques to demonstrate how information is modelled, persistently stored, manipulated and retrieved, as data, to serve scalable solutions to medium-scale business problems.		✓		
	Literate and effective communicator	L5.7 Effectively communicate models and analysis with accuracy and clarity to support high quality decision making.	✓		✓	✓

Social, ethically and environmentally aware, and Global in outlook and engaged in communities	L5.8 Critically evaluate professional, legal and/or ethical issues, and demonstrate professional responsibility in the development of quality data science solutions in a global context.	✓	✓		✓
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	Graduate Attributes	Level 6 course LOs	Advanced analytics	Data visualisation and dashboarding	Final year project	
KU	Critical and creative thinkers	L6.1	Demonstrate a systematic understanding of a range of advanced modelling and visualisation methods and techniques, their conditions and limitations, and of the need to validate and revise models.	✓	✓	✓
		L6.2	Demonstrate critical understanding and assessment of models to analyse a problem, to frame appropriate questions to achieve a solution, to develop a comprehensive solution or to design a range of scenarios resulting from modifications to it.	✓		✓
PPP	Critical and creative thinkers	L6.4	Appropriately analyse large scale data systems to discover trends and hidden relationships and inform / automate decision making.	✓	✓	
		L6.5	Apply appropriate specialist software and/or programming as an aid to an analytical study for critically evaluating and/or visualising the outcomes to support conclusions and/or recommendations, or for acquiring any further information.	✓	✓	
KTS	Entrepreneurial and Global in outlook and engaged in communities	L6.3	Transfer knowledge from one context to another, assess complex problems logically, approach them analytically leading to the formulation of solutions, and interpret related results in the original contexts of the problems	✓		✓
	Entrepreneurial, Global in outlook and engaged in communities and Social, ethically and environmentally aware	L6.7	Demonstrate complete handling of the full life-cycle of a data science and analytics project underpinned by an entrepreneurial approach and a focus on the needs of real clients and the wider society within a professional, legal and ethical framework.			✓
	Literate and effective communicator	L6.6	Be effective in professional and interpersonal communication of information, problems, models and solutions to both specialist and non-specialist audiences		✓	✓
		L6.8	Apply appropriate research methodologies in carrying out independent research in data science and analytics and produce a report demonstrating evidence of critical thinking.			✓

In brief, our graduates will be distinctive in being:

- **Critical and creative thinkers:** investigating various datasets to identify research questions and formulate hypotheses, using appropriately analytics techniques to support problem solving, designing experiments to discover knowledge that contribute to decision making.
- **Literate and effective communicator:** communicating analysis ideas and results in written and verbal forms and through effective use of data visualisation methods and presentation tools.
- **Entrepreneurial:** Having fundamental knowledge of the organization operations and issues, tackling problems resiliently and confidently both independently and in groups, reflecting and learning from own performance.
- **Global in outlook and engaged in communities:** engaging in Data Science and Analytics networking events, participating in competitions.
- **Socially, ethically and environmentally aware:** adhering to ethical code, making responsible use of data driven technologies, avoiding biased data collection and presentation.

Upon completion of the course students will be expected to seek a data scientist, data engineer or data analyst role in any type of organisation, whether it is in industry, research or government, to bring their analytical skills to the benefit of a variety of problems, e.g. healthcare, retail industry, etc. Data scientist roles were found to be the most difficult to fill due to difficulties finding potential candidates with the required levels of skills, knowledge and experience. This BSc course aims at filling the gap by integrating analytics and computer science and ensuring the right balance between them enabling graduates to use their technical skills to manage, analyse and visualise data.

## Course structure

This section shows the core and option modules available as part of the course and their credit value. Full-time Undergraduate students study 120 credits per year. Course structures can be subject to change each academic year following feedback from a variety of sources.

<b>Credit Level 4</b>				
<b>Module code</b>	<b>Module title</b>	<b>Status</b>	<b>UK credit</b>	<b>ECTS</b>
	Applied Mathematics	Core	20	10
4DATA001W	Statistical modelling and analysis	Core	20	10
	Database design and implementation	Core	20	10
4BUIS003W	Requirements modelling	Core	20	10
4COSC001W	Software development I	Core	20	10
4COSC005W	Software development II	Core	20	10
<b>Award of Certificate of Higher Education available</b>				
<b>Credit Level 5</b>				
<b>Module code</b>	<b>Module title</b>	<b>Status</b>	<b>UK credit</b>	<b>ECTS</b>
5BUIS002W	Business Analytics	Core	20	10
5DATA002W	Machine Learning and Data mining	Core	20	10

5DATA003W	Service Operations management	Core	20	10
5COSC002W	Database Systems	Core	20	10
5COSC001W	Object-oriented programming	Option	20	10
5BUI004W	Agile Project management and professional experience	Option	20	10
5SENG001W	Algorithms: Theory design and implementation	Option	20	10
5BUI003W	Information Technology Security	Option	20	10
Various	<a href="#">[Westminster Elective]</a>	Elective	20	10
<b>Award of Diploma of Higher Education or Foundation Degree available</b>				
*6COSC013W	*Computer Science Placement	Core		
<b>Credit Level 6</b>				
Module code	Module title	Status	UK credit	ECTS
6DATA001W	Data visualisation and dash boarding	Core	20	10
6DATA002W	Advanced Analytics	Core	20	10
6COSC006W	Final year project	Core	40	20
6DATA003W	Big Data Analytics	Option	20	10
6BUI001W	CRM & CM with Business Intelligence	Option	20	10
New	Applied Artificial Intelligence	Option	20	10
6BUI002W	Information driven entrepreneurship and enterprise	Option	20	10
6MMCS002W	Digital Marketing, Social media and Web analytics	Option	20	10
Various	<a href="#">[Westminster Elective]</a>	Elective	20	10
<b>Award BSc available</b>				
<b>Award BSc Honours available</b>				
<b>*When 6COSC013W is taken award of BSc /BSc Honours with Industrial Experience available</b>				

One Westminster Elective module may also be chosen as an alternative to an option at level 5 and level 6.

Not all option modules will necessarily be offered in any one academic year. In addition, timetabling and limited spaces may mean you cannot do your first choice of modules.

## Professional Body Accreditation or other external references

The course is intended to fulfil the educational requirements of the British Computer Society (BCS) to fulfil the educational requirements registration as a Chartered IT Professional (CITP) and partial Chartered Engineer (CEng). Accreditation from Professional Body is being sought but pending.

Students can apply for the free Operations Research Society student membership. Benefits include allocation of a mentor, access to O.R. journals and publications and meeting employers at our annual Careers Open Day.

## Academic regulations

The current Handbook of Academic Regulations is available at:  
[westminster.ac.uk/academicregulations](http://westminster.ac.uk/academicregulations)

However, this course may have specific regulations to comply with professional body accreditation which should be read in conjunction with [Section 17 Framework for](#)

[Undergraduate Courses](#) of the Handbook of Academic Regulations. Any course specific regulations will be outlined in the course handbook provided to students on enrolment.

## **How will you be supported in your studies?**

### **Course Management**

The BSc (Honours) Data Science and Analytics course is under the School of Computer Science and Engineering and the management structure supporting the course is as follows:

- Salma Chahed, the Course Leader is responsible for day to day running and overall management of the course and development of the curriculum;
- Philip Trwoga, Head of School holds academic responsibility for the course and other courses within the School;
- Jonathan Stockdale, Pro Vice-Chancellor and Head of the College of Design, Creative and Digital Industries, holds overall responsibility for the course, and for the other courses run by the College.

### **Academic Support**

Upon arrival, an induction programme will introduce you to the staff responsible for the course, the campus on which you will be studying, the Library and IT facilities, additional support available and to your Campus Registry. You will be provided with the Course Handbook, which provides detailed information about the course. Each course has a course leader or Director of Studies. All students enrolled on a full-time course and part time students registered for more than 60 credits a year have a personal tutor, who provides advice and guidance on academic matters. The University uses a Virtual Learning Environment called Blackboard where students access their course materials, and can communicate and collaborate with staff and other students. Further information on Blackboard can be found at [westminster.ac.uk/blackboard](http://westminster.ac.uk/blackboard).

You will be allocated a personal tutor at the beginning of your studies who will support you throughout your student journey easing the transition into Higher Education through to higher levels of study.

Academic and Personal tutoring involves fostering academic partnerships, with mutual expectations, between tutors and students. Tutors will provide proactive, personalised academic and pastoral support to help your academic, personal and professional development. We see students as co-creators in this academic partnership taking responsibility for their own development by fully engaging with tutoring arrangements to optimize their learning experience.

As such, you will have scheduled mandatory, individual meetings with your tutor who will provide you with regular feedback on your academic progress. Tutors can also advise you on the educational coherence of your module choice, assessment procedures, regulations and University structures, and educational support needs advising on appropriate provision available.

You will also have continuous pastoral support throughout your time at University and can see your tutor either by appointment or in designated office hours. Your tutor can provide a link to specialist support available through University Services and refer you for more specialised

pastoral guidance as appropriate to the School Senior Tutor, Disability Services, Counselling Services, Registry and/or other Services for Students. It is important that you seek and ask for advice earlier rather than later.

More information is available from the Student Hub on Personal Tutoring which can be found at: <https://www.westminster.ac.uk/current-students/support-and-services/personal-tutors>

## **Learning Support**

The Academic Learning Development Centre supports students in developing the skills required for higher education. As well as online resources in Blackboard, students have the opportunity to attend Study Skills workshops and one to one appointments. Further information on the Academic Learning Development Centre can be found at [westminster.ac.uk/academic-learning-development](https://www.westminster.ac.uk/academic-learning-development).

Learning support includes four libraries, each holding a collection of resources related to the subjects taught at that site. Students<sup>1</sup> can search the entire library collection online through the Library Search service to find and reserve printed books, and access electronic resources (databases, e-journals, e-books). Students can choose to study in the libraries, which have areas for silent and group study, desktop computers, laptops for loan, photocopying and printing services. They can also choose from several computer rooms at each campus where desktop computers are available with the general and specialist software that supports the courses taught at their College. Students can also securely connect their own laptops and mobile devices to the University wireless network.

## **Careers Support**

From the very start of your studies, the Careers and Employability Services department is committed to supporting your career progression by offering a wide range of developmental opportunities, combined with up to date, tailored careers information, advice and guidance.

Our experienced careers staff are able to work with you to reflect on your career goals and plan how to get the most from your time at the University of Westminster, to access a range of work based learning opportunities including work experience, part-time jobs, volunteering and mentoring, before supporting your transition into employment with personalised job hunting, CV, application and interview advice.

The University uses an online management system called Engage, which offers access to a variety of events and activities led by employers and careers and employability staff, extensive part-time, work experience and graduate vacancy lists, comprehensive careers information and advice and one to one careers appointments. These services are also available to you for up to 3 years after you graduate.

## **Support Services**

The University of Westminster Student and Academic Services department provide advice and guidance on accommodation, financial and legal matters, personal counselling, health and disability issues, careers, specialist advice for international students and the chaplaincy providing multi-faith guidance. Further information on the advice available to students can be found at [westminster.ac.uk/student-advice](https://www.westminster.ac.uk/student-advice). The University of Westminster Students' Union

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<sup>1</sup> Students enrolled at Collaborative partners may have differing access due to licence agreements.



also provides a range of facilities to support students during their time at the University. Further information on UWSU can be found at [westminster.ac.uk/students-union](http://westminster.ac.uk/students-union).

### **How do we ensure the quality of our courses and continuous improvement?**

The course was initially approved by a University Validation Panel in **2018**. The panel included internal peers from the University, academic(s) from another university and a representative from industry. This helps to ensure the comparability of the course to those offered in other universities and the relevance to employers.

The course is also monitored each year by the College to ensure it is running effectively and that issues which might affect the student experience have been appropriately addressed. Staff will consider evidence about the course, including evidence of student achievement, reports from external examiners in order to evaluate the effectiveness of the course.

A Course revalidation takes place periodically to ensure that the curriculum is up-to-date and that the skills gained on the course continue to be relevant to employers. Students meet with Revalidation panels to provide feedback on their experiences. Student feedback from previous years is also part of the evidence used to assess how the course has been running.

### **How do we act on student feedback?**

Student feedback is gathered in a variety of ways.

- Through student engagement activities at Course/Module level, students have the opportunity to express their voice in the running of their course. Student representatives are elected to expressly represent the views of their peers. The University and the Students' Union work together to provide a full induction to the role of the student representatives.
- There are also School Staff Student Exchange meetings that enable wider discussions across the School. Student representatives are also represented on key College and University committees.
- All students are invited to complete a questionnaire before the end of each module. The feedback from this will inform the module leader on the effectiveness of the module and highlight areas that could be enhanced.
- The University also has an annual Postgraduate Taught Experience Survey or PTES which helps us compare how we are doing with other institutions, to make changes that will improve what we do in future and to keep doing the things that you value.

**Please note:** This programme specification provides a concise summary of the main features of the course and the learning outcomes that a student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided. This specification should be read in conjunction with the Course Handbook provided to students and Module Handbooks, which provide more detailed information on the specific learning outcomes, content, teaching, learning and assessment methods for each module.

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